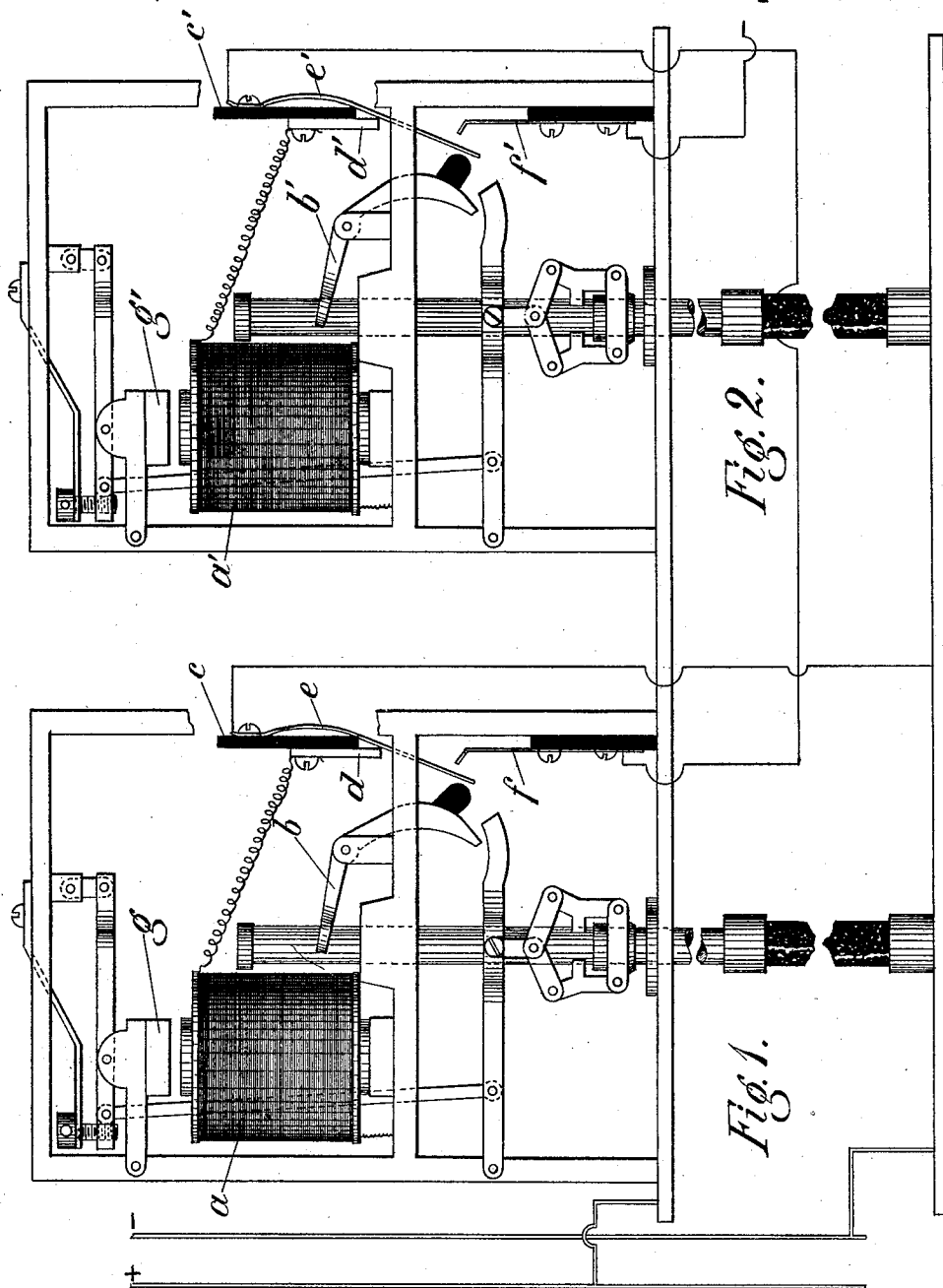


(No Model.)

R. SEGERDAHL.
ELECTRIC ARC LAMP.

No. 545,736.

Patented Sept. 3, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

RUDOLPH SEGERDAHL, OF CHICAGO, ILLINOIS.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 545,736, dated September 3, 1895.

Application filed April 26, 1894. Serial No. 509,134. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH SEGERDAHL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electric-Arc Lamps, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming part of this specification.

My invention relates more particularly to arc lamps; and the objects of my improvement are, first, to provide means whereby two or more sets of carbons may be operated in the same circuit and caused to burn in succession; in fact, any number that may under certain conditions be desired, so that the service of the lamp may be increased and frequent renewal of carbons avoided; second, to obtain a regulation of the different carbons so operated adapted to maintain the successive arcs of a uniform voltage, and, third, to obtain a durable structure. I attain these objects by providing each set of carbons with an independent regulating mechanism, and, having found a lamp construction, as illustrated and described in my Patent No. 486,801, granted April 24, 1894, peculiarly adapted to serve my purpose, I prefer to use the same. Briefly stated, the general construction of said lamp is as follows: The carbons in the lamp are normally held separated until the feeding-magnet placed in shunt of the arc becomes energized, which causes the carbons to come together. The lamp-circuit being thus completed, the arc in the lamp is established and maintained until said carbons are consumed to a certain point, when by means of an automatic cut-out the circuit in said shunt-magnet is broken and maintained open until the operation of renewal of carbons in the lamp takes place.

My invention herein may be applied to any of the well-known forms of "open-circuit" lamps, and, speaking generally, my invention consists of two or more arc lamps embodying the above features, arranged in groups and in parallel connection, derived circuits, and switching devices for said circuits adapted to cause the circuits of the respective lamps in the group to be formed success-

ively, thus causing one lamp to burn after the other.

In the accompanying drawing I have shown two lamps of similar construction in connection with circuits and switching devices embodying my invention. Each of said lamps is provided with a feeding or shunt magnet *a* and *a'*, respectively, and adapted to operate in the manner previously referred to. The insulating-blocks *c* and *c'*, to which the contacts *d e* and *d' e'*, located in the shunt-circuits of their respective lamps, are secured, and the levers *b* and *b'* constitute the automatic cut-out devices previously referred to, forming no part of my present invention.

f and *f'* are fixed contacts, which will be more fully referred to hereinafter.

As previously stated and shown in the accompanying drawing, I arrange the lamps I desire to operate in parallel. Furthermore, I arrange all the lamps in the group, except the one intended to operate first, with their respective circuits normally open. This one lamp referred to and intended to operate first, Fig. 1, I will call the "king lamp." Its circuit through the feed-magnet *a* is normally closed, and the carbons in this lamp may also normally be in a closed circuit without defeating the object of my invention; but as it in that case will be necessary to use a magnetic lifting device to separate said carbons I prefer to use the arrangement as shown and in which the carbons are normally held separated.

My invention and its operation will be more fully understood by tracing the circuit through the positive wire entering the shunt-magnet *a* through the contacts *d e* and out through the negative wire. The lamp 1 is thus normally in circuit through its shunt-magnet *a*, which, when energized, permits the carbons in the lamp to come together and establish the arc in the usual manner.

When the cut-out action, as above referred to, takes place in the lamp, its shunt-circuit is opened at the contacts *d e* and the feed action in the lamp is arrested. To cause the next set of carbons to be brought into circuit at this instant I secure the contact *f* in close proximity to the movable contact *e* and connect the same with one of the terminals of the

shunt-magnet a' , so that when the circuit is broken at the contacts $d e$ a circuit is completed through the shunt-magnet a' by the contact e being pressed against the contact f , thus causing the armature g' to be attracted, which permits the carbon governed by the same to descend and complete its circuit. This formed circuit being of a lower resistance than the arc in the first lamp, causes its arc to be extinguished and the arc in the second lamp to be formed without any interruption of the light service. This second lamp may, as shown, be provided with a similar switching device as lamp 1, and a contact f' with connections to the same adapted to introduce a third lamp in the group; and it will readily be understood, when referring to the above description, how this third lamp, or, in fact, any number of lamps, may be introduced in the same group and caused to operate as specified.

The advantages of having the switching-contacts above referred to placed in high-resistance circuits is readily seen, and as it tends to reduce the sparking at said switching-contacts when in action to a minimum it assures a durable structure.

Other advantages will occur to those versed in the art to which my invention pertains.

My invention may be made subject to certain modifications and yet fall within the scope of my present invention, particularly the mechanical features of the same, and I do not therefore wish to be understood as limiting myself to the exact construction as shown.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an electric light system, two or more

are lamps in parallel connection, each of said lamps being provided with means to maintain their respective carbons normally separated, derived circuits, and switching devices for said derived circuits arranged to operate as described, whereby after the carbons in the first lamp (king lamp) are consumed to a certain point the derived circuit in said lamp may be automatically broken and circuits through one of the other lamps in the group completed adapted to extinguish the arc in said first lamp and to cause the light service to be continued by the carbons thus brought into action.

2. In an arc lamp having more than one set of carbons, said carbons being intended to burn in succession and each provided with an independent regulating mechanism in derived circuit, means to cause said regulating mechanisms to be placed into action successively, consisting of switching devices for said derived circuits adapted to maintain one of the said regulating mechanisms normally in a closed circuit and all the other regulating mechanisms in open circuits until the feed action governed by said first mechanism ceases.

3. In an electric light system, the combination with two or more movable electrodes having each an independent regulating mechanism in derived circuit, of switching devices for said derived circuits substantially as described adapted to cause said regulating mechanisms to operate in a predetermined sequence, and circuits, whereby said electrodes may be caused to burn in succession.

RUDOLPH SEGERDAILL.

Witnesses:

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